Acute Coronary Syndrome

1. Which one of the following is not considered a benefit of Chest Pain Center Accreditation?
   a. Improved patient outcomes
   b. Streamlined processes to allow for rapid treatment
   c. Reduce costs and readmission rates
   d. All of the above are benefits of Chest Pain Center Accreditation

2. EHAC stands for Early Heart Attack Care?
   a. True
   b. False

3. What is the primary cause of acute coronary syndrome (ACS)?
   a. Exercise
   b. High blood pressure
   c. Atherosclerosis
   d. Heart failure

4. Which one of the following is not considered a symptom of ACS?
   a. Jaw Discomfort
   b. Abdominal discomfort
   c. Shortness of breath without chest discomfort
   d. All of the above are considered symptoms of ACS

5. There are age and gender differences associated with signs and symptoms of ACS?
   a. True
   b. False
6. Altered mental status may be a sign of ACS in some individuals?
   a. True
   b. False

7. All of the following are considered modifiable risk factors for ACS except:
   a. Smoking
   b. Sedentary lifestyle
   c. Age
   d. High cholesterol

8. Heart attacks occur immediately and never have warning signs?
   a. True
   b. False

9. If someone is having a heart attack, which of the following is the best option for seeking treatment?
   a. Wait a few hours and see if the symptoms resolve, if they do not, then call your physician
   b. Drive yourself to the ED. You can get there faster since you know a short-cut
   c. Call 9-1-1 to activate EMS immediately
   d. Call a family member or neighbor to drive you to the ED

10. The goal for door to reperfusion is?
    a. 10 minutes
    b. 30 minutes
    c. 90 minutes
    d. 120 minutes
Acute Coronary Syndrome

Early Recognition and Action Save Lives
Objectives

- Review the standards of Chest Pain Center Accreditation
- State the importance of Early Heart Attack Care (EHAC)® and early EMS activation
- Discuss the definition and pathophysiology of Acute Coronary Syndrome (ACS)
- Recognize the signs and symptoms of ACS
- Recognize gender and age differences associated with ACS
- Identify the risk factors for ACS
Chest Pain Center Accreditation

• McLaren Bay Region was awarded the designation of Chest Pain Center with Primary PCI in September 2015 through the Society of Cardiovascular Patient Care.

• Philosophy on Accreditation:
  • Brings together various specialties including EMS, Emergency Medicine, and Cardiology
  • Includes clinicians, administrators, physicians, nurses, and quality improvement specialists
  • Improvement in clinical processes for early assessment, diagnosis, and treatment
Chest Pain Center Accreditation

Eight key elements of Accreditation:

• Community Education and EHAC®
• Emergency Department (ED) Integration with Emergency Medical Services (EMS)
• Emergency Assessment of Patients with Symptoms of ACS – Timely Diagnosis and Treatment
• Assessment of Patients with Low Risk for ACS and No Assignable Cause for Their Symptoms
• Process Improvement
• Personnel, Competencies, and Training
• Organizational Structure and Commitment
• Functional Facility Design
Chest Pain Center Accreditation

Benefits:
- Improve patient outcomes
- Improve coordination of ACS patient care
- Standardization of diagnosis and treatment modalities
- Improvement in evaluation processes
- Streamline processes to allow for rapid treatment
- Reduce costs and readmission rates
- Improve patient satisfaction
Early Heart Attack Care (EHAC)®

• Public awareness campaign to increase education and understanding of the early heart attack symptoms in order to prevent damage from occurring
• A plea to the public to be responsible for themselves as well as others who may be experiencing symptoms
• Education on the benefits of early treatment and activating emergency medical services (EMS)
  • Care begins with 9-1-1 activation

Society of Cardiovascular Patient Care (2015). EHAC Brochure
EHAC®

- Approximately 735,000 people in the United States have myocardial infarctions (heart attacks) each year
- Approximately 50% displayed warning signs
- Alarmingly, 85% of heart damage occurs within the first two hours of a heart attack

EHAC involves recognizing the warning signs of a heart attack and acting on them immediately before damage occurs

Society of Cardiovascular Patient Care (2015). EHAC Brochure
Early Signs and Symptoms

May include

- Chest pressure, squeezing, aching, or burning sensation
- Feeling of fullness
- Jaw discomfort
- Excessive fatigue
- Shortness of breath
- Pain that radiates down one or both arms
- Anxiety
- Nausea
- Back discomfort

Society of Cardiovascular Patient Care (2015). EHAC Brochure
Survive, Don’t Drive…Call 9-1-1

• Learn the early signs and symptoms of a heart attack
• Share EHAC with others
• Take the pledge

Society of Cardiovascular Patient Care (2015). EHAC Brochure
EHAC Pledge

I understand that heart attacks have beginnings that may include chest discomfort, shortness of breath, shoulder and/or arm pain, and weakness. These may occur hours or weeks before the actual heart attack.

I solemnly pledge that if it happens to me or anyone I know, I will call 9-1-1 or activate our Emergency Medical Services.

Society of Cardiovascular Patient Care (2015). EHAC Brochure
Acute Coronary Syndrome (ACS)
What is Acute Coronary Syndrome?

• An emergent condition characterized by sudden signs and symptoms of myocardial ischemia, or a sudden reduction of blood flow to the heart.
• ACS refers to the clinical symptoms of coronary heart disease which is the leading cause of death worldwide.
• Atherosclerosis is the primary cause of ACS.
  • A condition where plaque builds up in the arteries
What is Acute Coronary Syndrome?

Most occurrences result from a disruption in blood flow from a non-critical lesion; however, ACS can result from physiologic stress that increased demand on the heart including:

- Trauma
- Tachyarrhythmia
- Anemia
- Blood loss
- Infection
Acute Coronary Syndrome

The ACS spectrum includes:

• Unstable Angina
• Non-ST-Segment Elevation MI (NSTEMI)
• ST-Segment Elevation MI (STEMI)
Angina Pectoris

• Stable Angina – term used for chest discomfort or pain that occurs when the heart does not get the amount of blood it needs.
  • Pressure, fullness, squeezing, or pain in the chest
  • Discomfort in the neck, jaw, back, shoulder, or arm
  • Occurs when the heart is required to work harder
    • Physical exertion or emotional stress
  • Generally lasts a for a short period of time and eases with rest or medication
Angina Pectoris

- Unstable Angina – ACS that causes an unexpected discomfort
  - May occur with little physical exertion, rest, or while sleeping
  - May last longer than stable angina
  - Rest or medication usually does not relieve the discomfort
  - May increase in severity and frequency
  - Should be treated as an emergency
Myocardial Infarction

Myocardial infarction occurs when blood flow to the heart is blocked.

- Interruption in blood flow can then cause damage to the heart muscle.
- Cardiac biomarkers (Troponin) are elevated along with evidence of myocardial ischemia including:
  - Symptoms of ischemia
  - ECG changes
    - New onset ST or T wave changes
    - New left bundle branch block (LBBB)
    - Pathological Q wave development
    - Wall motion abnormalities
Myocardial Infarction

ST-Segment Myocardial Infarction (STEMI)
- ST segment elevation noted on ECG in two or more contiguous leads or new LBBB
- May be elevation in cardiac biomarkers

Non-ST-Segment Myocardial Infarction (NSTEMI)
- ST segment depression and or T wave inversion noted on ECG
- Elevated cardiac biomarkers
Signs and Symptoms of ACS

People may experience one or a combination of the following symptoms:

- Chest discomfort including pain, pressure, tightness, squeezing, or fullness
- Discomfort in one or both shoulders or arms
- Shortness of breath with or without chest discomfort
- Jaw discomfort
- Back discomfort
- Abdominal discomfort
- Indigestion
Signs and Symptoms of ACS

- Nausea and/or vomiting
- Anxiety and/or restlessness
- Lightheadedness
- Cool, clammy, diaphoretic skin with pale appearance
- Palpitations
- Weakness
- Dizziness
Signs and Symptoms of ACS

- Not all people will experience the same symptoms of ACS
- Some may not experience any type of chest discomfort
- There are age and gender differences associated with ACS signs and symptoms and are more likely to present with atypical presentations
  - Elderly
  - Women
  - Diabetics
Signs and Symptoms of ACS

Elderly

• Shortness of breath
• Weakness
• Lightheadedness
• Abdominal discomfort including nausea and vomiting
• Diaphoresis
• Altered mental status
  • Those with preexisting altered mental status or dementia may not recall recent symptoms
Signs and Symptoms of ACS

Women
- Pressure, tightness, burning, aching, fullness in the chest, neck, jaw, back, or shoulder
- Fatigue
- Weakness
- Shortness of breath
- Abdominal discomfort
- Nausea and/or vomiting
- Dizziness
Signs and Symptoms of ACS

Diabetics

• May experience silent myocardial ischemia
  • Cardiac autonomic dysfunction
• Epigastric discomfort
• Shortness of breath
• Dizziness
Signs and Symptoms of ACS

- It is extremely important to remember that people present differently with ACS signs and symptoms.
- Chest discomfort does not have to be present with ACS.
- Atypical presentations do occur.
ACS Assessment and Diagnosis

- Complete history and physical assessment including vitals
- Obtain 12-lead ECG
  - Goal – 10 minutes including interpretation
- Apply supplemental oxygen if warranted
- Ensure patent IV access
- Laboratory results
- Possible chest x-ray
ACS Risk Factors

- Both modifiable and non-modifiable risk factors for ACS.
- Modifiable risk factors are controllable, meaning we can do something to alter them.
- Non-modifiable risk factors are not controllable, or something that we can alter or change.
Modifiable Risk Factors

- Diabetes
- Dyslipidemia
- Hypertension
- Obesity
- Metabolic Syndrome
- Sedentary lifestyle
- Smoking
- Stress
Non-modifiable Risk Factors

- Age - increases risk
- Gender – males develop coronary heart disease at an earlier age
- Family history
- Ethnicity or race
- Known cardiovascular disease
  - Previous history of coronary heart disease, heart attack, stroke, or peripheral vascular disease
Management of ACS

Initial treatment focus:

- Stabilizing the patient
- Relieving the ischemic discomfort
- Providing antithrombotic therapy
Management of ACS

• Additional therapies include:
  • Percutaneous coronary intervention (PCI)
    • Invasive treatment for the occluded vessel
    • Goal – door to reperfusion time less than 90 minutes
  • Thrombolysis
    • Pharmacologic clot-buster
    • If immediate interventional cath lab is not available
    • Goal – door to needle time less than 30 minutes
• McLaren Bay Region’s primary reperfusion strategy is PCI
Rapid Response Team

• A Rapid Response may be called to provide multidisciplinary care to a patient whose condition is deteriorating.
• Goal – early and rapid intervention to promote patient outcomes
• Call 22222 to initiate Rapid Response Team
• Overhead page announced including location
References


References


